



DOCUMENT-IDENTIFIER: US 4750084 A

TITLE: Ceramic laminated capacitor

BSPR:

To solve this problem, methods of producing an approximately cylindrical ceramic laminated capacitor from a rectangular parallelepipedic chip by chamfering the outer peripheral corners of the rectangular parallelepipedic chip in the step of grinding or cutting before or after the step of baking have recently been proposed (Japanese Patent Laid-Open No. 34622/1984, Japanese Patent Laid-Open No. 82712/1984). However, such chamfering process is very difficult for small-sized chips. Chamfering a chip before the step of baking involves a risk of inducing the displacement of the inner electrode or separation between the green sheet layers, while chamfering a chip after the step of baking takes much time because the chip after being baked is very hard.

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DOCUMENT-IDENTIFIER: US 5871313 A

TITLE: Precise self-aligning chamfer method and apparatus

BSPR:

Finally, since the most cost effective method of producing chamfered substrates is to chamfer the parts in a "green" or unfired state, there is an exposure to the problem of delamination. Delamination is the undesired separating of the layers of the ceramic substrate. The ceramic substrate, in its unfired state, is actually a composite of many layers of ceramic compressed together, wherein the layers tend to separate or delaminate when contacted by a cutting tool.

DEPR:

Referring once again to FIGS. 5 and 6, a heater element 90 can be provided and suitably attached to guide member 112 in the proximity of blades 116. Such a heater element 90 may include a cartridge heater, such as, a firerod heater, commercially available from Watlow of St. Louis, Mo. Heat can thus be applied to the cutter assembly 110 for enhancing the cutting action as may be desirable in a particular chamfering operation. In addition heat can be applied to minimize a delamination problem often associated with "green" chamfering methods. Another benefit of applying heat is that the heat facilitates creation of larger shavings which are more readily removed away from the substrate during a chamfering operation. Creation of larger shavings reduces the chances of particulate debris or fused ceramic when the chamfered substrate is subsequently sintered.

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